SUMMER MATH PACKET
7th GRADE ENTERING 8TH GRADE

Name: _____ **Date** _____

SKILL: Divide integers like and unlike signs

$4 \times \_\_\_\_ = -16$ $-7 \times \_\_\_\_ = 28$ $\_\_\_\_ \times 16 = 48$

$12 \div -6 = \_\_\_\_$ $10 \div -2 = \_\_\_\_$

Name: _____ **Date** _____

SKILL: Divide integers like and unlike signs

$-100 \div 4 \div 5 =$ _____

$-150 \div -10 \div -5 =$ _____

$-300 \div 10 \div -15 =$ _____

$1{,}000 \div -100 \div 10 =$ _____

Name: _____ **Date** _____

SKILL: Use operational orders, shown by parentheses

Directions: Find the solutions for these problems:

$^{-}5 \times {}^{+}3 - {}^{+}4 =$ _____

$^{+}16 \div {}^{+}4 - {}^{+}2 =$ _____

$^{-}40 \div {}^{+}5 + {}^{+}3 =$ _____

$^{+}10 + {}^{-}3 \times {}^{-}6 =$ _____

$^{-}2 \times {}^{-}4 - {}^{+}7 =$ _____

Name: _____ **Date** _____

SKILL: Use operational orders shown by parentheses.

Directions: Find the answers to these problems:

$^{-}6 + {}^{-}9 + {}^{+}5 =$ _____

$({}^{-}7 - {}^{+}2) \times {}^{+}3 - {}^{-}2 =$ _____

$^{-}5 \times {}^{-}5 + {}^{+}45 \div {}^{-}9 =$ _____

$^{+}18 \div {}^{-}2 + {}^{+}3 \times ({}^{+}42 - {}^{-}5) =$ _____

Name: _____ Date _____

Independent Practice Worksheet

Skill: Use order of operations with exponents

1] $5^2 + 4 - (3 \times 2) \div 1 =$ _____

2] $3 \times 5 - (8 + 3^2) \div 17 =$ _____

3] $(2^2 + 4) \times (6^2 - 8) =$ _____

Name: _____ **Date** _____

SKILL: Use order of operations with exponents

1) $5 + (3^3 \times 2) - 10 =$ _____

2) $36 \div (2^2 - 1) \times 3 =$ _____

3) $(16 \times 4) - 7^2 + 1^3 =$ _____

4) $(4^2 \times 5 + 6) - (1 + 2 \times 3^2) =$ _____

Name: _____ **Date** _____

SKILL: Add decimal fractions, convert to decimal number

Directions: Give sums as a decimal.

1) $\frac{15}{100} + \frac{3}{10} =$ _____

2) $\frac{106}{1{,}000} + \frac{2}{100} + \frac{4}{10} =$ _____

3) $\frac{789}{1{,}000} + \frac{11}{100} =$ _____

Name: _____ **Date** _____

SKILL: Identify probability of number cube outcome

Directions: Use the spinner to answer these questions. Write each probability in words, as a ratio, and a fraction.

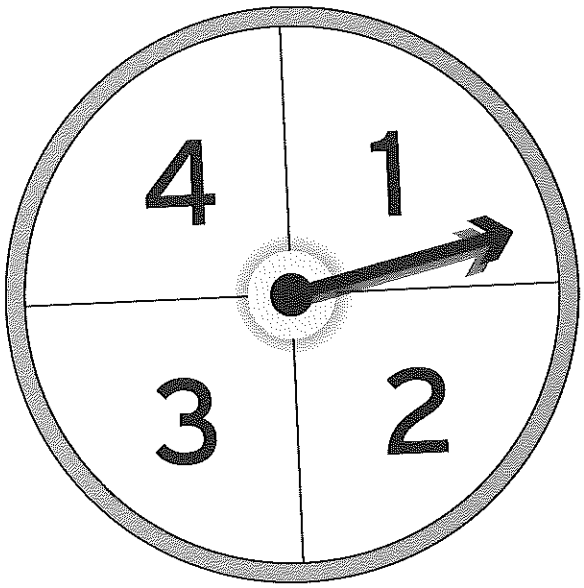
1. What are all the possible outcomes? _____

2. What is the chance of spinning a 1? _____

3. What is the probability of spinning a 4? _____

4. What is the probability of spinning an odd number? _____

5. What is the probability of spinning an even number? _____



Name: _____ **Date** _____

SKILL: Identify probability of a number cube outcome

Directions: You roll a die with eight faces numbered 1 through 8.

1.What are the possible outcomes? _____

Directions: For problems 2 through 5 write your answers in words, as a ratio, and as a fraction.

2. What are the chances of rolling a 2? _____

3. What is the probability of rolling an even number? _____

4. What is the probability of rolling an odd number? _____

5. What is the probability of rolling a zero? _____

Name: _____ **Date** _____

SKILL: Identify the probability of a specific outcome

John has 2 pennies, 2 nickels, 3 dimes, and 5 quarters in a bag. He reaches into the bag to pull out a coin.

1) What is the probability that he chooses a dime?

2) What is the probability that he chooses a quarter?

3) What is the probability that the coin is less than 25¢

4) What is the probability that the coin is 50¢?

Name: _____ **Date** _____

SKILL: Identify the probability of an outcome

Directions: A bag of marbles contains two yellow, three green, one blue, and two red. Find the probability of each of the following.

1) picking a blue marble = _____

2) picking a green marble = _____

3) picking a marble that is not yellow = _____

4) picking a marble that is not red = _____

5) picking a purple marble = _____

Name: _____ **Date** _____

SKILL: Identify the probability of an outcome

Directions: Develop a tree diagram to find the sample space. Use the tree diagram to find the probabilities listed.

Outfits with three sweaters (brown, black, and gray) and two pants styles (jeans and khakis)

Find the probability of:

1.) a brown sweater and jeans _____

2.) khakis _____

3.) a gray sweater _____

Name: _____ **Date** _____

SKILL: Understand and use random samples that lead to representative samples of a population.

1) Colin would like to know the average number of siblings the students in 7th grade have. He asked all the students who play on his soccer team to participate in the survey. Is this a biased or unbiased sample? Explain.

2) Chloe is interested in how much water people drink each day. She decided to set up a survey station at the local park near the water fountain. She asked people to participate after they used the water fountain. Is this a biased or unbiased sample? Explain.

3) The local high school wanted to know how the families in the neighborhood felt about the school. They placed all of the addresses in the neighborhood in a box and chose the first 100 to participate. Is this a biased or unbiased sample of the population? Explain.

4) Ron would like to determine the most popular brand of shoes in his school. What would be the best way to sample a population that would represent all of his school?

Name: _____ **Date** _____

SKILL: Make inferences about a population based on data from multiple samples.

1) Mark is planning what to buy for a clothing store in town. He collected two random samples of 100 men regarding their menswear preference? Make at least two inferences based on the results.

Sample	Jeans	Pants	Shorts	Total
1	75	14	11	100
2	68	23	9	100

2) Crystal wanted to know what fruit students in her class prefer. She found that 12 students preferred bananas, 9 students preferred oranges, and 9 students preferred apples. Make an inference about Crystal's class.

3) Marine Biologists were collecting data from the local stream about the species of fish. The chart shows the data that was collected every month for the entire year. Find the mean for each species of fish and make 2 inferences based on the mean.

Sample (monthly)	Trout	Bass	Sunfish	Total
1	6	13	31	50
2	10	11	29	50
3	5	18	27	50
4	7	8	35	50
5	11	9	30	50
6	12	13	25	50
7	8	13	29	50
8	7	15	28	50
9	12	18	20	50
10	7	14	29	50
11	9	17	24	50
12	10	16	24	50

Name: _____ **Date** _____

SKILL: Use measures of center and measures of variability to create inferences comparing data sets.

1) Colin and Maria had a six minute competition to see who could type faster. The results are in the table below. Make an inference based on Colin and Maria's mean words per minute.

Minute	Colin's words per minute	Maria's words per minute
1st	58	54
2nd	62	55
3rd	55	53
4th	48	57
5th	45	55
6th	42	56

2) James got the following grades on his report card: 98 in math, 76 in English language Arts, 89 in Social Studies, 100 in Science, 100 in Music and 95 in Physical Education. Macy got the following grades on her report card: 74 in math, 78 in English language Arts, 82 in Social Studies, 75 in Science, 84 in Music and 80 in Physical Education. Use the range to make an inference comparing James and Macy's report card grades.

Name: _____ **Date** _____

SKILL: Apply properties to add, subtract, factor and expand linear expressions with rational coefficients.

1) Expand the following linear expression using the distributive property: $6(x-4)$

2) Combine like terms for the following linear expression: $7(8x+7)+3x$

3) Factorize the following linear expression: $18x-6$

4) Are the following expressions equivalent: $5(8x-2)$ and $40x-10$?

Name: _____ **Date** _____

SKILL: Represent word problems with an equivalent expression.

1) Tim's cellphone plan cost decreased by 28% this month since he was busy with his new job. Write an equation to represent the amount Tim paid this month.

2) The green fish swims 6 times as fast as the red fish. Write an equation to represent the speed of the green fish.

3) The lions have won 8% more games this season than last. Write an equation to represent the increase of wins from last season to this season.

Name: _____ **Date** _____

SKILL: Identify and rewrite equivalent expressions

1. Is $9(3 + 8x)$ equivalent to $27 + 72x$?

2. Is $(25a + 56)$ equivalent to $5a + 30 + 4(5a + 4)$?

3. Is $2(4x^2 + 2)$ equivalent to $8x^2 + 4$?

4. Is $6(3) + 6(6x)$ equivalent to $6(3 + 6x)$?

Name: _____ **Date** _____

SKILL: Match length and width to a given perimeter

1.) Find the perimeter of a rectangle 14 cm long and 4 cm wide.

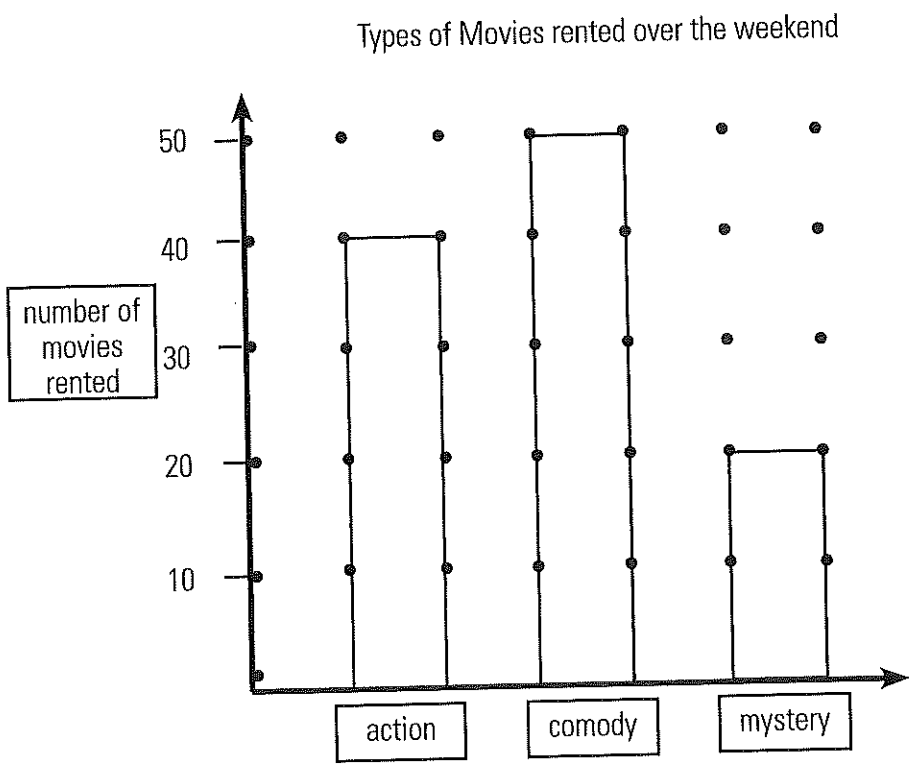
2.) Find the two possible lengths and widths if the perimeter of a rectangle is 10 m.

3.) Find two possible lengths and widths if the perimeter of a rectangle is 20 ft.

Name: _____ **Date** _____

Word Problem Worksheet

Directions: Use the bar graph below to answer the questions.



1) How many action movies were rented?

2) What was the difference between the number of comedy movies and mystery movies rented?

3) What type of movie was the most popular?

4) How many movies were rented in all?

5) If renting a movie costs $3.75, how much did the store earn this weekend?

Name: _____ **Date** _____

1. Cliff is creating a scale drawing of his property because he wants to build a fence around the entire property. He has used a 1 in.:100 ft. ratio on his scale drawing. If his property is 700 ft. x 1240 ft., what would the perimeter be on his scale drawing?

2. Dana has been recreating her property in a scale drawing. She has used a scale of 2 in.: 5 ft. If her front porch measures 12 ft. x 35 ft., what would the measurements be on her scale drawing?

3. On the scale drawing of Rita's bedroom, the length is 6 cm. and the width is 4.5 cm. If the scale used is 2 cm. = 7 ft., how much carpet does she need to cover the entire bedroom floor?

Name: _____ **Date** _____

SKILL: Draw triangles with various specifications.

1. Draw triangle WXY with angles 111° and 34°. Find the missing angle.

2. Draw triangle CAT with side lengths of 5 in, 8 in, 8 in. What type of triangle is it? Is it a unique triangle? Explain

3. Draw triangle DOG with side DO = 12 cm, angle O = 90°, and side OG = 9cm. What type of triangle is it? Is it a unique triangle? Explain.

Name: _____ **Date** _____

Measuring Angles

REVIEW SKILLS: Measure and identify type of angles

1. Type _____

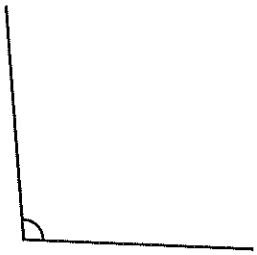
   Degree _____

2. Type _____

   Degree _____

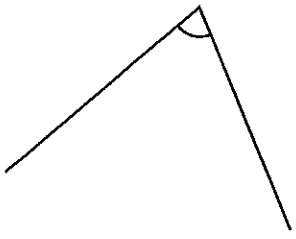
3. Type _____

   Degree _____



4. Type _____

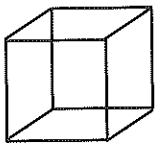
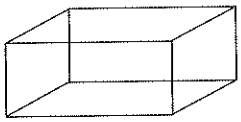
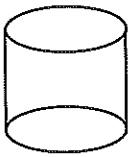
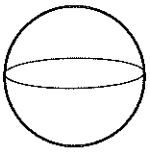
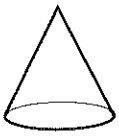
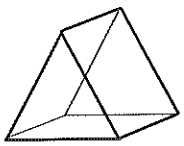
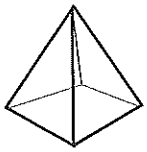
   Degree _____



Name: _____ **Date** _____

Characteristics of 3-D shapes

Directions: Describe the edges, faces, and vertices of given 3-D shapes

Picture of 3-D Shape	3-D Shape	Number of Edges	Number of Faces	Number of Vertices
	Cube	12	1. _____	8
	Rectangular Prism	12	6	2. _____
	3. _____	2	3	0
	Sphere	0	1	4. _____
	Cone	5. _____	2	0
	Triangular Prism	9	6. _____	6
	Square Pyramid	7. _____	5	5

Name: _____ **Date** _____

SKILL: Describe 2-D figures as cross sections of 3-D figures

1 Describe the 2-D shape that results if you slice a cube perpendicular to its base.

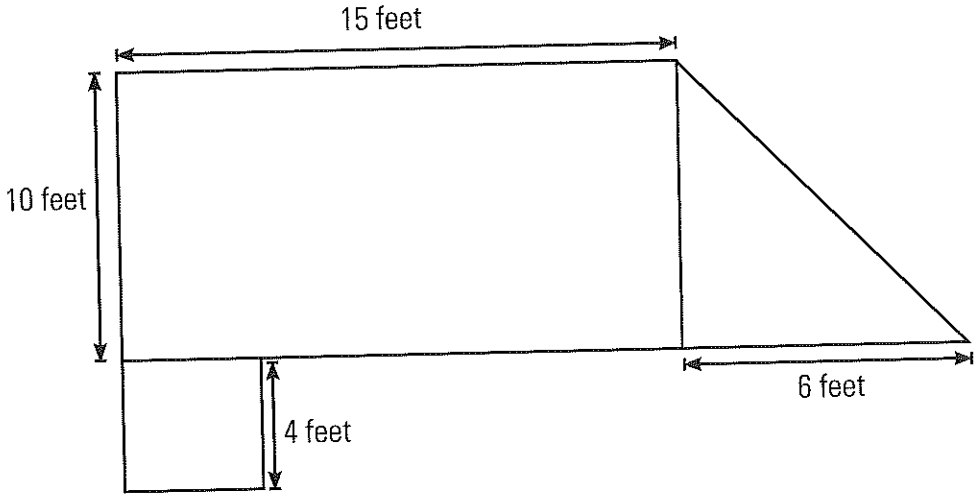
2. Which 2-D shape results if you slice a square pyramid parallel to its base?

3. If you slice a square pyramid perpendicular to its base through its vertex, which 2-D shape results as the cross section?

Name: _____ **Date** _____

SKILL: Calculate area of squares, rectangles, triangles and irregular polygons

Directions: Use the floor plan to find the area of each shape:



1) rectangle _____

2) square _____

3) triangle _____

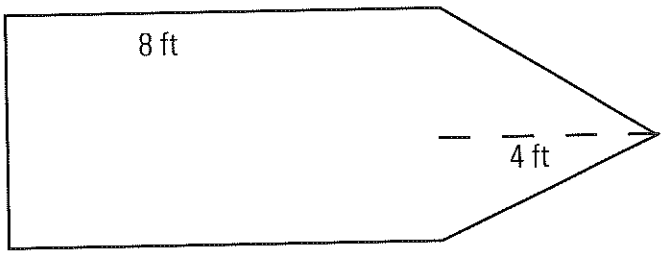
4) total area for the floor plan. _____

Name: _____ **Date** _____

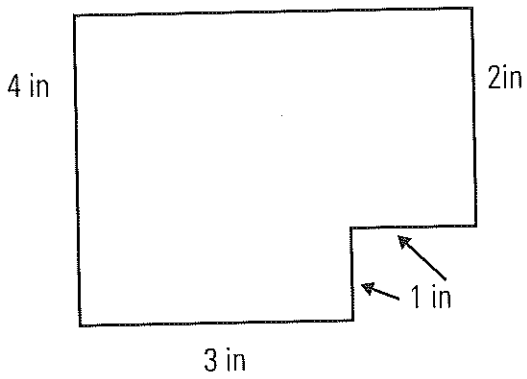
SKILL: Calculate area of squares, rectangles, triangles, and irregular polygons

Directions: Find the area of each figure.

1)



2)



Name: _____ **Date** _____

SKILL: Find the diameter of a circle

1. Find the diameter of a circle with a radius of 15 inches.

2. Find the radius of a circle with a diameter of 28 feet.

3. Find the circumference of a circle with a diameter of 8 cm.

Name: _____ **Date** _____

SKILL: Find the area and circumference of a circle.

1. If the diameter of a circle is 50 in., what is the radius? What is the area?

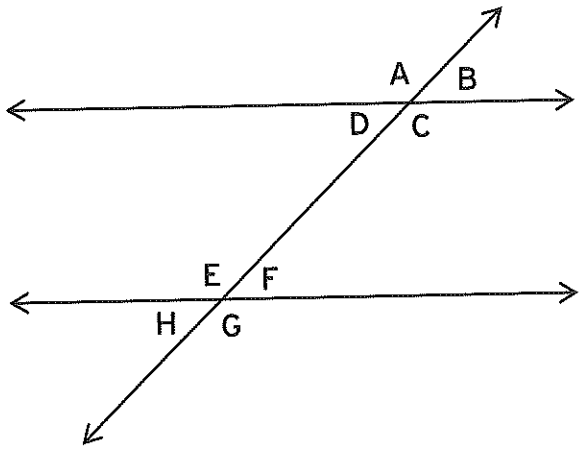
2. If the radius of a circle is 4.5 km., what is the circumference?

3. If the circumference of a circle is 69.08 yds., what is the radius? What is the area?

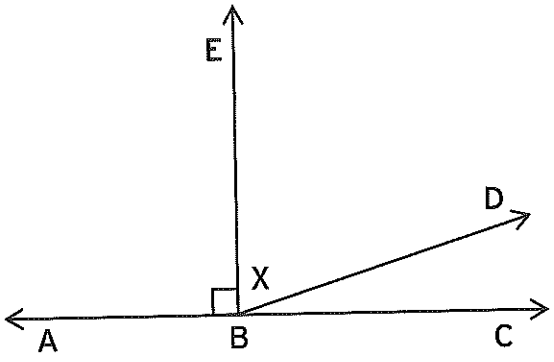
Name: _____ **Date** _____

Finding Missing Angles Independent Practice

1. Angle F is 64°, find all the missing angles. Explain.



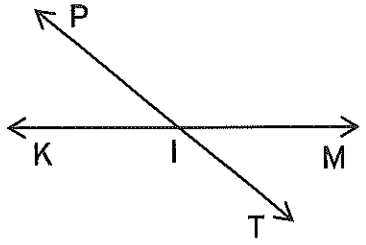
2. If angle DBC is 22°, what is the measure of angle x? Explain.



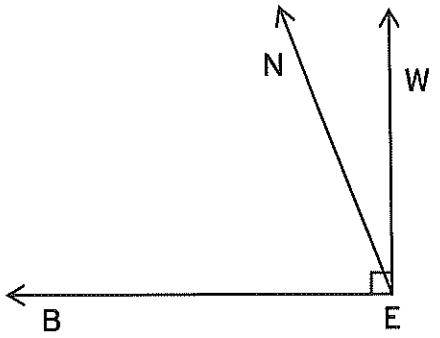
Name: _____ **Date** _____

SKILL: Solve problems using supplementary, complementary, adjacent and vertical angles

1. If the measure of angle KIP is 76°, what is the measure of angle PIM? Angle MIT? Angle KIT? Explain.



2. If the measure of angle NEW is 17°, what is the measure of angle BEN? Explain.



3. Write the word that correctly completes each statement.

a. The _____ of the measures of two supplementary angles is always 180°.

b. _____ angles always share a vertex, but never a side.

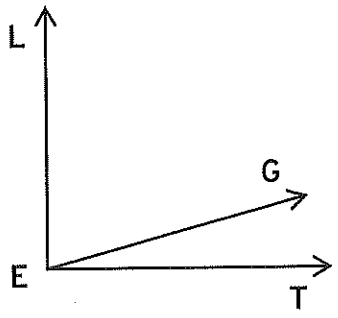
c. Vertical angles are always _____ .

d. The sum of the measures of two complementary angles is always _____ .

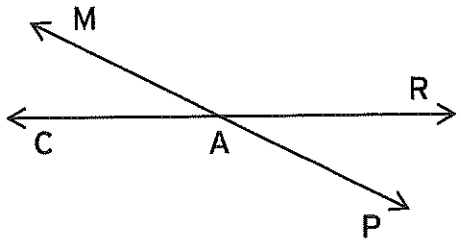
Name: _____ **Date** _____

Finding Missing Angles Guided Practice

1. If angle GET is 15°, what is the measure of angle LEG? Explain.



2. If angle CAM is 38°, what is the measure of angle MAR? Angle RAP? Angle CAP? Explain.



Name: _____ **Date** _____

SKILL: Calculate the perimeter of squares, rectangles, triangles, and irregular polygons

Directions: Find the perimeter of each shape.

1) A triangle with sides 5cm, 12cm, and 13cm

2) A square with 8mm sides

3) A rectangle with length 6m and width 5m

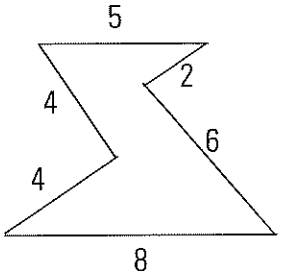
4) A rectangle with length 20 inches and width 8 inches

Name: _____ **Date** _____

SKILL: Calculate the perimeter of squares, rectangles, triangles, and irregular polygons

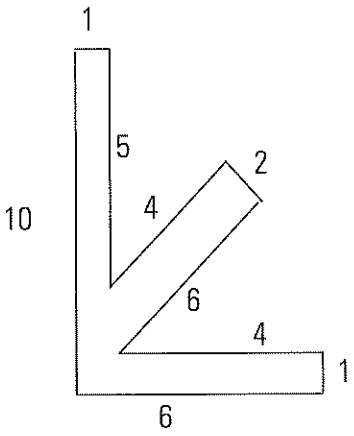
Directions: Use the diagrams to find the perimeter for each problem.

1)



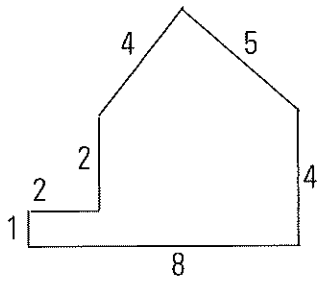
Perimeter = _____

2)



Perimeter = _____

3)



Perimeter = _____

Name: _____ **Date** _____

SKILL: Calculate the area of squares, rectangles, triangles, and irregular polygons

Directions: Find the area in each problem. Remember to label square units for each solution.

1) A dollar bill measures 15.5 cm by 6.5 cm.

2) A triangular garden is twice as long as it is high. Its base is 13m.

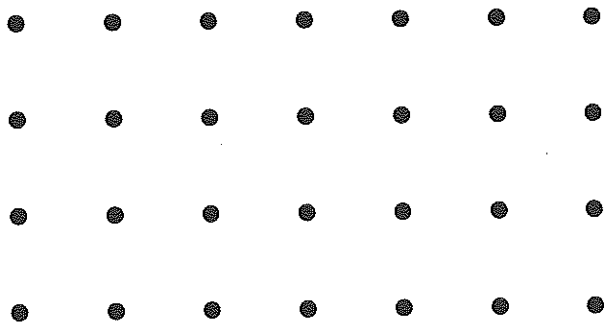
3) The top of Malcolm's desk is 2.5m wide and 2.5m long.

Name: _____ **Date** _____

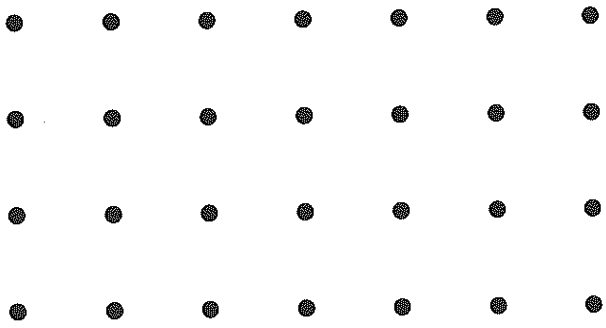
SKILL: Calculate the area of squares, rectangles, triangles, and irregular polygons

Directions: Use the geoboard grids below to create two irregular polygons each with an area of 12 units^2

1)



2)



Name: _____ **Date** _____

SKILL: Calculate the volume of cylinders and triangular prisms

Directions: Find the volume of each cylinder with the given information.

1) radius = 1 cm height = 2 cm

2) diameter = 24 m height = 8 m

3) diameter = 12 cm height = 2 cm

4) radius = 5 cm height = 7 cm

5) diameter = 10 mm height = 20 mm

Name: _____ **Date** _____

SKILL: Calculate the volume of cylinders and triangular prisms

Directions: Find the volume of each triangular prism with the given dimensions.

1.) 12 ft long, 4.2 ft wide, and 4 ft high

2.) 20 ft long, 12.5 ft wide, and 5 ft high

3.) 22 in long, 4.4 in wide, and 7 in high

Name: _____ **Date** _____

SKILL: Understand the four coordinate graph

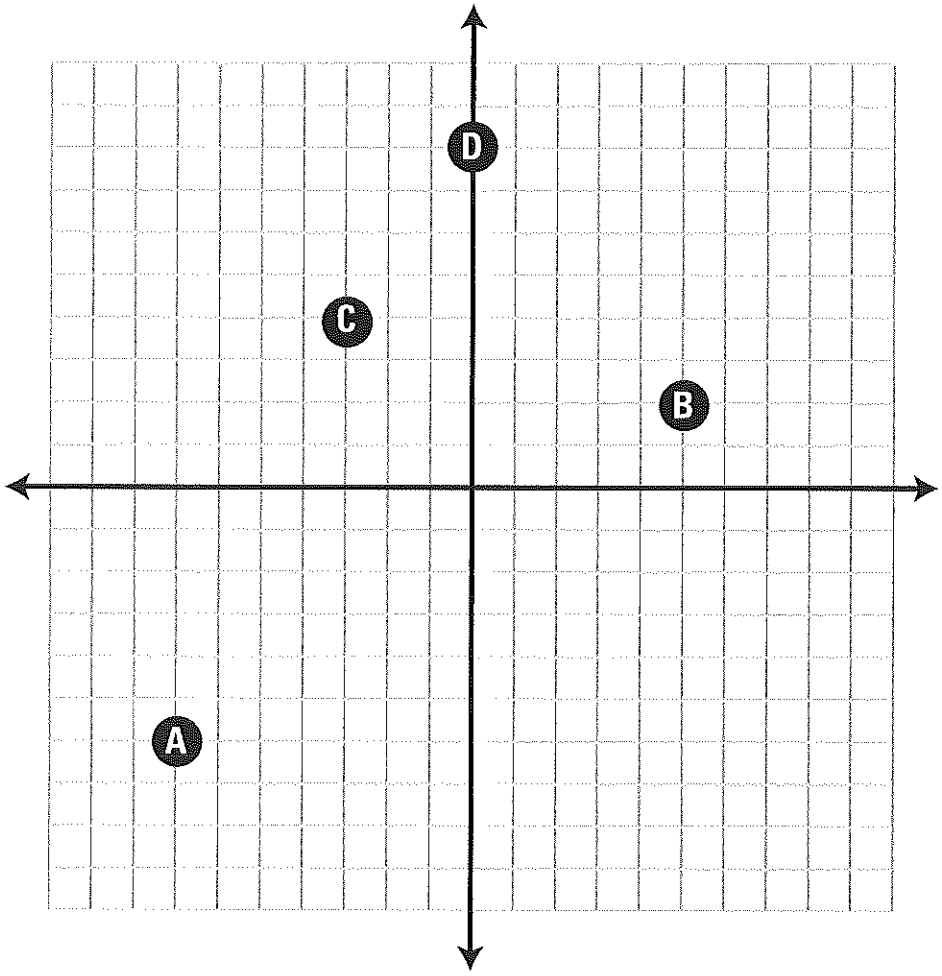
Directions: Give the coordinates of each point.

1) A _____

2) B _____

3) C _____

4) D _____



Name: _____ **Date** _____

SKILL: Understand the four coordinate graph

Directions: Plot the following points in the graph below.

1. (-1, 10)
2. (2, -9)
3. (3, 8)
4. (-4, 7)
5. (-5, -6)